2.7 Paleontological Resources

2.7.1 Existing Conditions

2.7.1.1 San Diego County Paleontological Resources Sensitivity Map

As depicted on Figure 2.7-1, *San Diego County Paleontological Resources Potential and Sensitivity Map*, the Project site is located in an area with geologic formations that have a high potential for the discovery of paleontological resources

2.7.1.2 Site Geology

The Project site is located within the Coastal Plain region of the Peninsular Ranges province of southern California. The Coastal Plain region is underlain by a thick sequence or relatively undisturbed and non-conformable marine and non-marine sedimentary rocks units over the last 75 million years. Many of the sedimentary rock units within the Coastal Plain region contain paleontological resources.

No paleontological field survey was conducted of the Project site because paleontological resources generally cannot be seen on the surface of the ground; however, understanding the geology of a particular area and the fossil productivity of formations that occur in that area make it possible to predict the probability of encountering paleontological resources during earthwork activities. The following discussion provides a general overview of the types of geologic deposits which underlay the Project site, as documented in the geotechnical report for the Project (see SEIR Appendix H). The paleontological sensitivity of each of the on-site geological formations is also summarized in Table 2.7-1, *On-Site Geologic Conditions and Associated Paleontological Sensitivity*.

Table 2.7-1 ON-SITE GEOLOGIC CONDITIONS AND ASSOCIATED PALEONTOLOGICAL SENSITIVITY

Geologic Unit	Paleontological Sensitivity Rating
Very Old Paralic Deposits Undivided (Qvop)	Moderate Sensitivity
Otay Formation (To)	High Sensitivity

Source: County of San Diego (2009)

Very Old Paralic Deposits Undivided

The southern portion of the Project site is underlain by Very Old Paralic Deposits Undivided from the early to middle Pleistocene age. Paralic deposits are generally located in the transition area between the sea and the land and can include a mixture of deposits from subtidal to beach deposits to colluvium and alluvium from the land. Paralic deposits can essentially be thought of as an interfingering of Pleistocene marine terrace deposits and older alluvium. The on-site Very Old Paralic Deposits Undivided consist of dense to very dense, damp, grayish to reddish brown, silty, fine to medium sandstone with interbeds of cohesionless fine to coarse sand and localized layers of silt and clay. Pleistocene-age strata in the southern portion of San Diego County have produced sparse, but significant fossils. For this reason, Very Old Paralic Deposits Undivided is assigned a moderate paleontological resource sensitivity rating.

Otay Formation

The northern and central portions of the site are underlain by Tertiary-age Otay Formation. The on-site Otay Formation primarily consists of dense to very dense and hard, slightly and moderately cemented, clayey sandstone, sandy siltstone, and sandy claystone. The Otay Formation is a fluvial sedimentary rock, and numerous fossil localities have been discovered throughout San Diego County in this formation. Based on recent discoveries, the Otay Formation is considered to be the richest source of late Oligocene terrestrial vertebrates in California. Due to its potential to contain important, well-preserved fossils, the Otay Formation is assigned a high paleontological resource sensitivity rating.

2.7.2 Analysis of Project Effects and Determination as to Significance

2.7.2.1 East Otay Mesa Specific Plan Final EIR

The EOMSP Final EIR (1994) did not address impacts to paleontological resources. As such, the County of San Diego has determined that the current SEIR must evaluate the potential for site-specific impacts to previously undisclosed sensitive paleontological resources.

2.7.2.2 Paleontological Resources

Guidelines for the Determination of Significance

The Project would have a significant adverse effect on paleontological resources if the following would occur as a result of a Project-related component:

(1) The Project proposes activities directly or indirectly damaging to a unique paleontological resource or site. A significant impact to paleontological resources may occur as a result of the Project, if Project-related grading or excavation would disturb the substratum or parent material below the major soil horizons in any paleontologically sensitive area of the County, as shown on the San Diego County Paleontological Resources Potential and Sensitivity Map (see Figure 2.7-1).

This guideline is derived from the County of San Diego's "Guidelines for Determining Significance, Paleontological Resources" (January 15, 2009), which is available for review at the County of San Diego Department of Planning and Development Services, 5510 Overland Avenue, 3rd Floor, San Diego, CA 92123. The "Guidelines for Determining Significance, Paleontological Resources" are herein incorporated by reference pursuant to CEQA Guidelines Section 15150.

Analysis

As depicted on Figure 2.7-1, the Project site is located in an area classified by the County as having a high potential to contain paleontological resources. In addition, a site-specific survey has determined the site is underlain by Very Old Paralic Deposits Undivided and Otay Formation (see SEIR Appendix H), which are geologic deposits/formations with moderate and high sensitivities for paleontological resources. Implementation of the proposed Project would require grading activities which have the potential to impact sensitive paleontological resources that may be buried beneath the surface, particularly within geologic formations identified as having a "moderate" or "high" paleontological sensitivity rating. Therefore, because implementation of the proposed Project would result in disturbances to on-site geologic formations that are rated as "moderate" and "high" with respect to paleontological sensitivity, there is the potential for significant impacts to subsurface

paleontological resource deposits that have not previously been identified. This is regarded as a significant direct impact of the proposed Project (**Significant Direct Impact PR-1**).

2.7.3 Cumulative Impact Analysis

2.7.3.1 Cumulative Impacts Identified by the EOMSP Final EIR

The EOMSP Final EIR (1994) did not identify or disclose any cumulatively significant impacts to paleontological resources.

2.7.3.2 Project-Specific Cumulative Impact Analysis

A study area was defined in order to assess the cumulative effect of the Project's impacts to paleontological resources. In defining the study area, geologic maps for the surrounding areas were researched to identify all geologic formations within the Project vicinity that are identified as having a moderate or high likelihood of containing sensitive paleontological resources. The resulting study area encompassed the County of San Diego and City of San Diego portions of Otay Mesa which are identified as containing Very Old Paralic Deposits Undivided or Otay Formation geologic units. Figure 2.7-2, *Cumulative Study Area – Paleontological Resources*, depicts the cumulative study area along with a depiction of the cumulative projects considered in the analysis.

Research was conducted which resulted in a cumulative study area for paleontological resources, depicted on Figure 2.7-2. The study area includes 28 past, present, and reasonably foreseeable projects that might have potential impacts to paleontological resources. EIR Table 1-7 provides a summary of all the cumulative projects along with their identified impacts to each of the environmental issue areas addressed by this EIR. As identified in EIR Table 1-7, *Cumulative Projects CEQA Summary*, 14 projects within the cumulative study area contain paleontologically sensitive geologic formations and have the potential to result in significant impacts to paleontological resources, although it is likely that more projects within the cumulative study area would result in significant impacts to paleontological resources once the environmental analysis for these projects is completed. It should be noted that the City of San Diego has similar thresholds of significance and monitoring requirements for paleontological resources; as such, impacts to paleontological resources within the City and County portions of Otay Mesa would be subject to similar mitigation requirements. As required mitigation, all of these projects would provide paleontological monitors during grading and earthwork activities. In the event that fossils were uncovered during earthwork and grading activities, a fossil data recovery program would be implemented for each project, which would consist of collecting, cleaning, and cataloguing significant discovered fossils.

Nonetheless, because impacts to significant paleontological resource deposits are anticipated within the cumulative study area, and because grading activities associated with the proposed Project also have the potential to result in significant impacts to sensitive paleontological resources, implementation of the proposed Project would result in a cumulatively significant impact to paleontological resources (**Significant Cumulative Impact PR-2**).

2.7.4 Significance of Impacts Prior to Mitigation

Significant Direct Impact PR-1: The potential exists for the Project to uncover, damage or destroy significant paleontological resources (*i.e.*, fossils) during Project grading and excavation activities in geologic formations with high and moderate paleontological sensitivities.

Significant Cumulative Impact PR-2: The Project's potential to uncover, damage or destroy significant paleontological resources (*i.e.*, fossils) during Project grading and excavation activities in geologic formations with high and moderate paleontological sensitivities. When combined with impacts to paleontological resources associated with other cumulative developments within the Project's study area, such impacts would represent a cumulatively significant impact for which mitigation would be required.

2.7.5 Mitigation

2.7.5.1 Cumulative Impacts Identified by the EOMSP Final EIR

The EOMSP Final EIR (1994) did not identify or disclose any cumulatively significant impacts to paleontological resources.

2.7.5.2 Project-Specific Cumulative Impact Analysis

M-PR-1a **PALEO GRADING MONITORING:** ***[DPLU, PCC] [DPW, LDR] [GP, IP, UO] [DPLU, FEE X 2]***

Intent: In order to mitigate for potential impacts to paleontological resources on the project site, a monitoring program during grading, trenching or other excavation into undisturbed rock layers beneath the soil horizons and a fossil recovery program, if significant paleontological resources are encountered, shall be implemented pursuant to the County of San Diego Guidelines for Determining Significance for Paleontological Resources. **Description of Requirement**: A County approved Paleontologist "Project Paleontologist" shall be contracted to perform paleontological resource monitoring and a fossil recovery program if significant paleontological resources are encountered during all grading, trenching, or other excavation into undisturbed rock layers beneath the soil horizons. The following shall be completed:

a. A County approved Paleontologist ("Project Paleontologist") shall perform the monitoring duties pursuant to the most current version of the County of San Diego Guidelines for Determining Significance for Paleontological Resources, and this permit. The contract provided to the county shall include an agreement that the grading/ trenching/excavation monitoring will be completed, and a Memorandum of Understanding (MOU) between the approved Paleontologist and the County of San Diego shall be executed. The contract shall include a cost estimate for the monitoring work and reporting.

b. The cost of the monitoring shall be added to the grading bonds that will be posted with the Department of Public Works, or bond separately with the Department of Planning and Land Use.

Documentation: The applicant shall provide a copy of the Grading Monitoring Contract, cost estimate, and MOU to the *[DPLU, PCC]*. Additionally, the cost amount of the monitoring work shall be added to the grading bond cost estimate. **Timing**: Prior to approval of any grading and or improvement plans and issuance of any Grading or Construction Permits. **Monitoring**: The *[DPLU, PCC]* shall review the contract, MOU and cost estimate or separate bonds for compliance with this condition. The cost estimate

should be forwarded to *[DPW, Project Manager]*, for inclusion in the grading bond cost estimate, and grading bonds. The *[DPW, PC]* shall add the cost of the monitoring to the grading bond costs, and the grading monitoring requirement shall be made a condition of the issuance of the grading or construction permit.

M-PR-1b **PALEO RESOURCES REPORT:** ***[DPLU, PCC] [UO, FG] [DPLU, FEE X 2]***
Intent: In order to ensure that the Grading Monitoring occurred during the grading, trenching or other excavation phase of the project pursuant to the Paleo Grading Monitoring Condition a final report shall be prepared. **Description of Requirement:** A final Paleontological Resources Mitigation Report that documents the results, analysis, and conclusions of all phases of the Paleontological Monitoring Program shall be prepared. The report shall and include the following items:

a. If **no** paleontological resources were discovered, submit a Negative letter report, which states that the monitoring has been completed and that no paleontological resources were discovered.

b. If resources **were** discovered and recovered during grading, a detailed report shall be prepared by the Project Paleontologist. The report shall comply with the County of San Diego's Guidelines for Determining Significance for Paleontological Resources. The report shall identify which accredited institution has agreed to accept the curated fossils and include proof of the Transfer of Paleontological Resources, in the form of a letter, from the director of the paleontology department of the accredited institution to the Director of DPLU verifying that the curated fossils from the project site have been received by the institution."

Documentation: The Project Paleontologist shall prepare the final report and submit it to the *[DPLU, PCC]* for approval. If resources were discovered then the applicant shall complete the following:

a. Transfer the cataloged fossil remains and copies of relevant field notes, maps, stratigraphic sections, and photographs to an accredited institution (museum or university) in California that maintains paleontological collections for archival storage and/or display, and

b. The applicant shall Submit TWO hard copies of the final Paleontological Resources Mitigation Report to the *[DPLU, PCC]* for final approval of the mitigation, and submit an electronic copy of the complete report in Microsoft Word on a CD. In addition, submit one copy of the report to the San Diego Natural History Museum and one copy to the institution that received the fossils.

Timing: Prior to any occupancy, final grading release, or use of the premises in reliance of this permit, the final report shall be prepared. **Monitoring:** The *[DPLU, PCC]* shall review the final report for compliance this condition and the report format guidelines. Upon acceptance of the report, *[DPLU, PCC]* shall inform *[DPW, LDR]* and *[DPW, PDCI]*, that the requirement is complete and the bond amount can be relinquished. If the

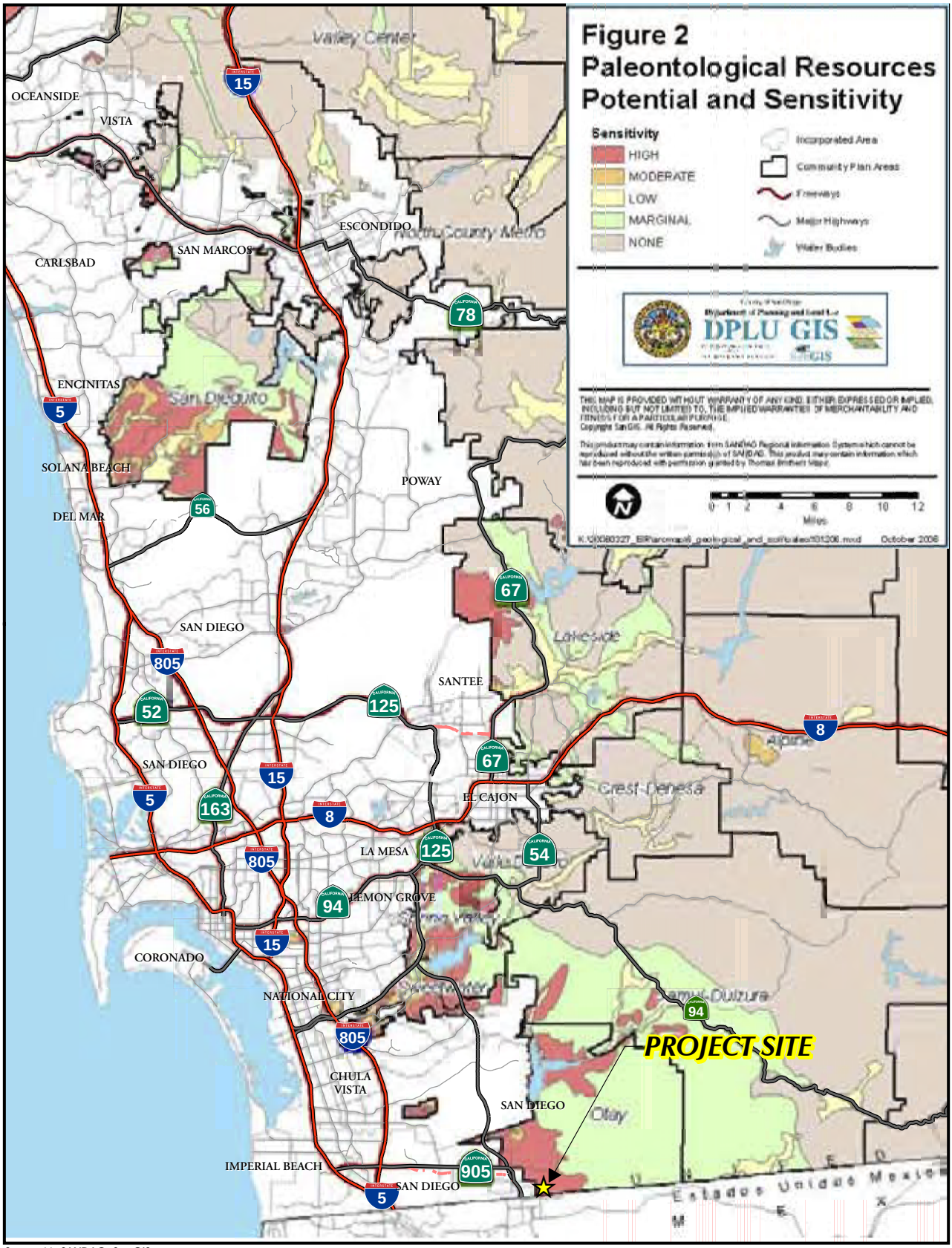
monitoring was bonded separately, then *[DPLU, PCC]* shall inform *[DPLU, FISCAL]* to release the bond back to the applicant.

M-PR-2 Mitigation Measures M-PR-1a and M-PR-1b shall apply.

2.7.6 Conclusion

Significant Direct Impact PR-1: Implementation of Mitigation Measures M-PR-1a and M-PR-1b would ensure that potential significant direct impacts to paleontological resources are reduced to less than significant levels by implementing a paleontological monitoring and reporting program according to the County's *Guidelines for Determining Significance – Paleontological Resources*. The paleontological monitoring and reporting program would ensure that grading within sensitive strata would be observed, earthwork activities would be diverted or halted in the event that paleontological resources are uncovered, and all discovered resources be salvaged, cleaned, curated, and transferred to an accredited museum or university in California.

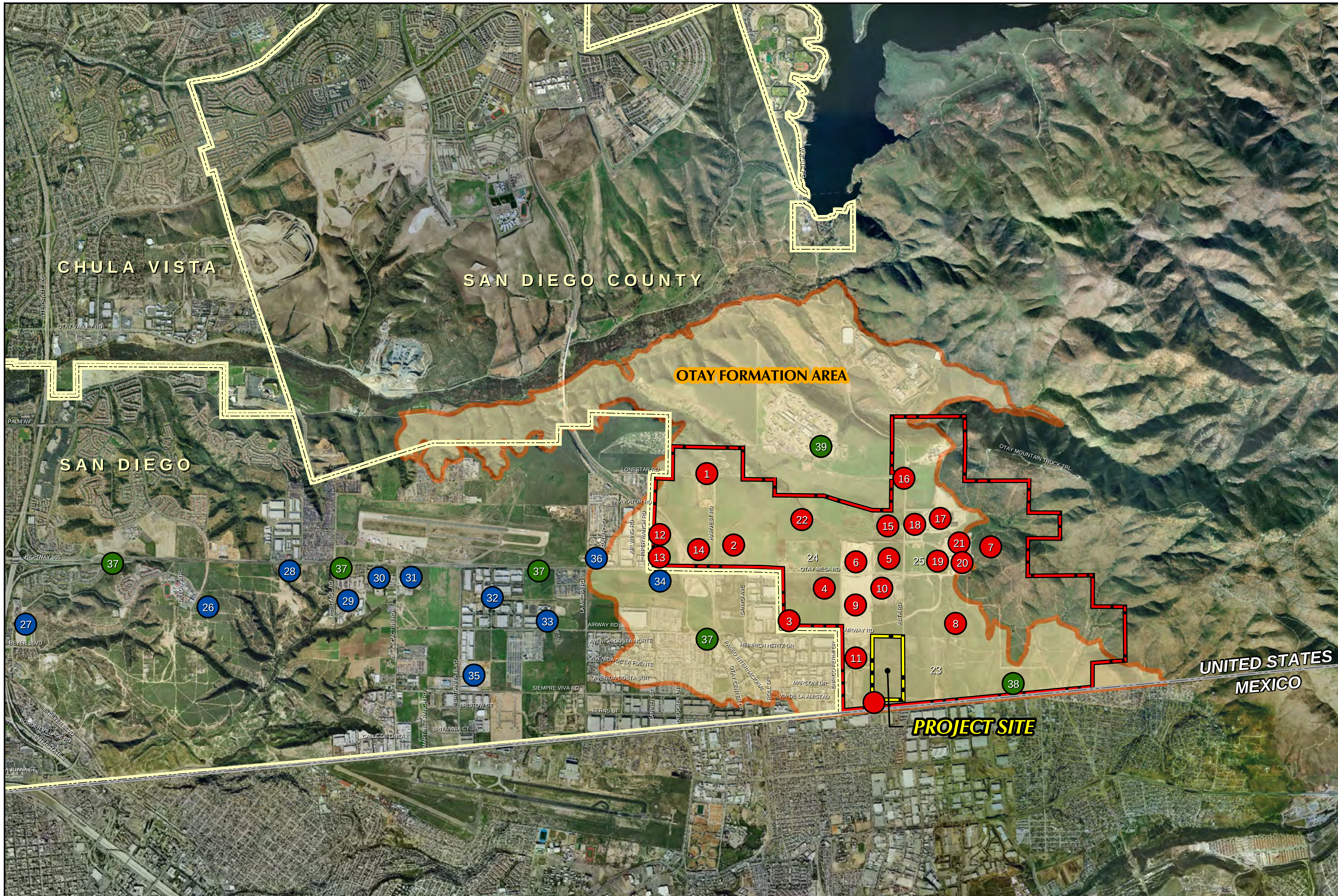
Significant Cumulative Impact PR-2: Implementation of Mitigation Measures M-PR-1a and M-PR-1b (as required by Mitigation Measure M-PR-2) would ensure that the Project's cumulative impacts to paleontological resources are reduced to a level below significance through implementation of a paleontological monitoring program. Since other developments within the cumulative study area that have the potential to impact paleontological resources would be required to implement similar mitigation to preclude significant impacts to paleontological resources, implementation of the required mitigation would reduce the Project's cumulatively significant impacts to paleontological resources to a level below significant.



Source(s): SANDAG, SanGIS

0 3 6 Miles

FIGURE 2.7-1
San Diego County Paleontological Resources Potential and Sensitivity Map



CUMULATIVE PROJECTS

County of San Diego Projects

1. East Otay Mesa Specific Plan
2. Otay Tech Center
3. Airway Business Center/FedEx
4. Enrico Fermi Industrial Park
5. East Otay Auto Storage
6. East Otay Auto Transfer
7. Otay Hills Quarry
8. Otay Crossings Commerce Park
9. Otay Mesa Travel Plaza
10. East Otay Temporary Fire Facility
11. Burke Minor Subdivision
12. Piper Otay Park Subdivision
13. Pilot Travel Center Site Plan
14. California Crossings
15. CCA San Diego Correctional Facility
16. National Enterprises Auto Storage/Recycling
17. Otay Mesa Generating Project
18. Power Plant Laydown Site
19. Paseo De La Fuente
20. Vulcan Site Grading Plan
21. Vulcan Batching Plant
22. International Industrial Park
23. Otay Business Park
24. Ragabo Otay Technology Park
25. OMC Properties Subdivision

City of San Diego Projects

26. Southview
27. Remington Hills
28. Otay Corporate Center South
29. Pacific Gateway
30. Mesa Business Park
31. Otay Heights Business Park
32. Brown Field Business Park
33. Empire Center
34. San Diego Mesa
35. Just Rite
36. World Petrol III

Other Projects

37. SR-905 (Multiple Points)
38. SR-11 and Otay Mesa East Port of Entry
39. CA Health Care Facility,
    R. J. Donovan Correctional Facility

East Otay Mesa Specific Plan

Paleontological Resources Cumulative Study Area

0 2,000 4,000 Feet

FIGURE 2.7-2

Cumulative Study Area - Paleontological Resources